Vaginal Birth After Cesarean (VBAC) Compared to Elective Repeat Cesarean Delivery (ERCD) in Maternal Hemorrhage Prevention

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Abstract

The intricacy of childbirth is something that is both beautiful, yet potentially devastating if not approached appropriately for each individual mother and fetus. Maternal hemorrhaging is one, of the many, adverse outcomes that can present with childbirth. The potential risks of childbirth have led to various techniques and modes of delivery to reduce the possible detriments, posing debates over which is the "right" protocol. Due to the variability in research findings regarding postpartum hemorrhaging (PPH) and maternal and fetal safety, this research poses the question of: in multiparous women who have previously delivered via cesarean section [P], does vaginal birth after cesarean (VBAC) [I] reduce the need for maternal transfusion due to blood loss [O] when compared to elective repeat cesarean delivery (ERCD) [C]?

Introduction

PPH has been defined as blood loss greater than the anticipated amount of 500cc in vaginal birth and 1000cc in cesarean delivery. PPH does not discriminate against race, socioeconomic settings, nor maternal age. It is reported that 3-5% of obstetric patients experience PPH resulting in 12% of maternal deaths in the United States, and that those with blood loss of 1500mL or more require massive transfusions. Both VBAC and ERCD rank maternal hemorrhaging as one of the most detrimental associated outcomes. While previous vaginal deliveries and indications of nonrecurring CD, such as breech, are favorable in trial of labor after cesarean (TOLAC), increased maternal age, maternal BMI, and preexisting medical diseases are unfavorable factors. Due to inconclusive findings on this topic thus far, this research hopes to weigh the potential detriments to both procedures, ultimately determining the safer option for both mother and fetus.

Methods

A literature search was conducted in October 2019, using Health Source: Nursing/Academic Edition, PubMed, and Google Scholar. Fifteen articles, written on retrospective and cross-sectional studies, were included within this research based on their date of publication (2009-2019), method of delivery utilized, and transfusion guidelines followed. In addition to these guidelines, systematic reviews and meta-analyses were excluded. Search terms, such as "post-partum hemorrhage AND VBAC OR ERCD" and "bleeding OR hemorrhage AND vaginal birth after cesarean OR elective repeat cesarean delivery" were used. Studies were only included if human subjects were utilized.

Results

Though conclusive evidence was not found, and no definitive medical advice can be implemented for every patient, the research suggests that TOLAC and VBAC are encouraged if the woman does not have any health complications or risk factors that would contraindicate this mode of delivery. More maternal blood transfusions were needed post-ERCD than VBAC.

Table 1. Comparison of Results

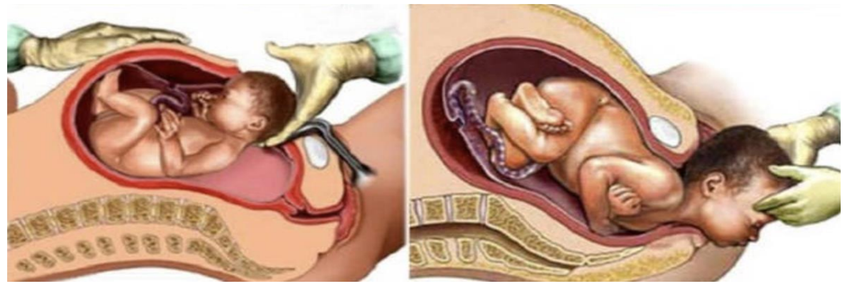
Study	Blood transfusion for VBAC	Blood transfusion for ERCD	Additional delivery complications	Maternal death from blood loss during VBAC	Maternal death from blood loss during ERCD
Ahmadzia et al (2018)	N/A	S	N/A	NS	NS
Cahill et al (2006)	S	S	S	N/A	N/A
Larsson et al (2010)	S	S	N/A	N/A	N/A
Mengesha et al (2019)	N/A	S	S	N/A	NS
Nisenblat et al (2006)	N/A	S	S	N/A	NS
Oboro et al (2010)	S	N/A	S	NS	N/A

Key: S = significant; NS = not significant; N/A = not available

Blood transfusion for VBAC	Blood transfusion for ERCD	Additional delivery complications	Maternal death from blood loss during VBAC	Maternal death from blood loss during ERCD
S = need for blood transfusion after VBAC	S = need for blood transfusion after ERCD	S = additional complications during delivery present	S = maternal death reported due to blood loss during VBAC	S = maternal death reported due to blood loss during ERCD
NS = no need for blood transfusion after VBAC	NS = no need for blood transfusion after ERCD	NS = no additional complications during delivery present	NS = no maternal death reported due to blood loss during VBAC	NS = no maternal death reported due to blood loss during ERCD

Discussion

3/6 studies recommended VBAC and/or TOLAC, while no studies suggested ERCD as the preferable delivery option. All three of those studies required transfusion, while five studies that utilized ERCD required transfusions, as well. 3/6 studies compared VBAC directly to ERCD, while the remaining three focused solely on VBAC or ERCD.
Peri vs postpartum hemorrhage was not always differentiated.
Not all studies shared the same parameters for necessitating transfusion, as some studies described PPH as "excessive blood loss", a subjective term that could vary amongst those measuring. Despite such discrepancies, one universal conclusion made amongst studies was that a communicative relationship between patient and provider is necessary to implement within treatment.



Cesarean Delivery

Vaginal Delivery

Conclusion

Due to the individualized nature of childbirth, the most agreed upon conclusion of this research has been that **obstetrics and women's health is an incredibly individualized field of medicine**, one that requires a mutual relationship and understanding between patient and practitioner.
Risk factors that women present with ultimately influence the decision of undergoing VBAC or ERCD.
With this understanding in mind, the **current research tends to be in support of TOLAC and VBAC**, given the mother has no contraindications to either. Such risk factors include, but are not limited to, an incision into the myometrium for TOLAC and major placenta previa for VBAC. **More studies showed that ERCDs resulted in a higher need for maternal transfusion.**